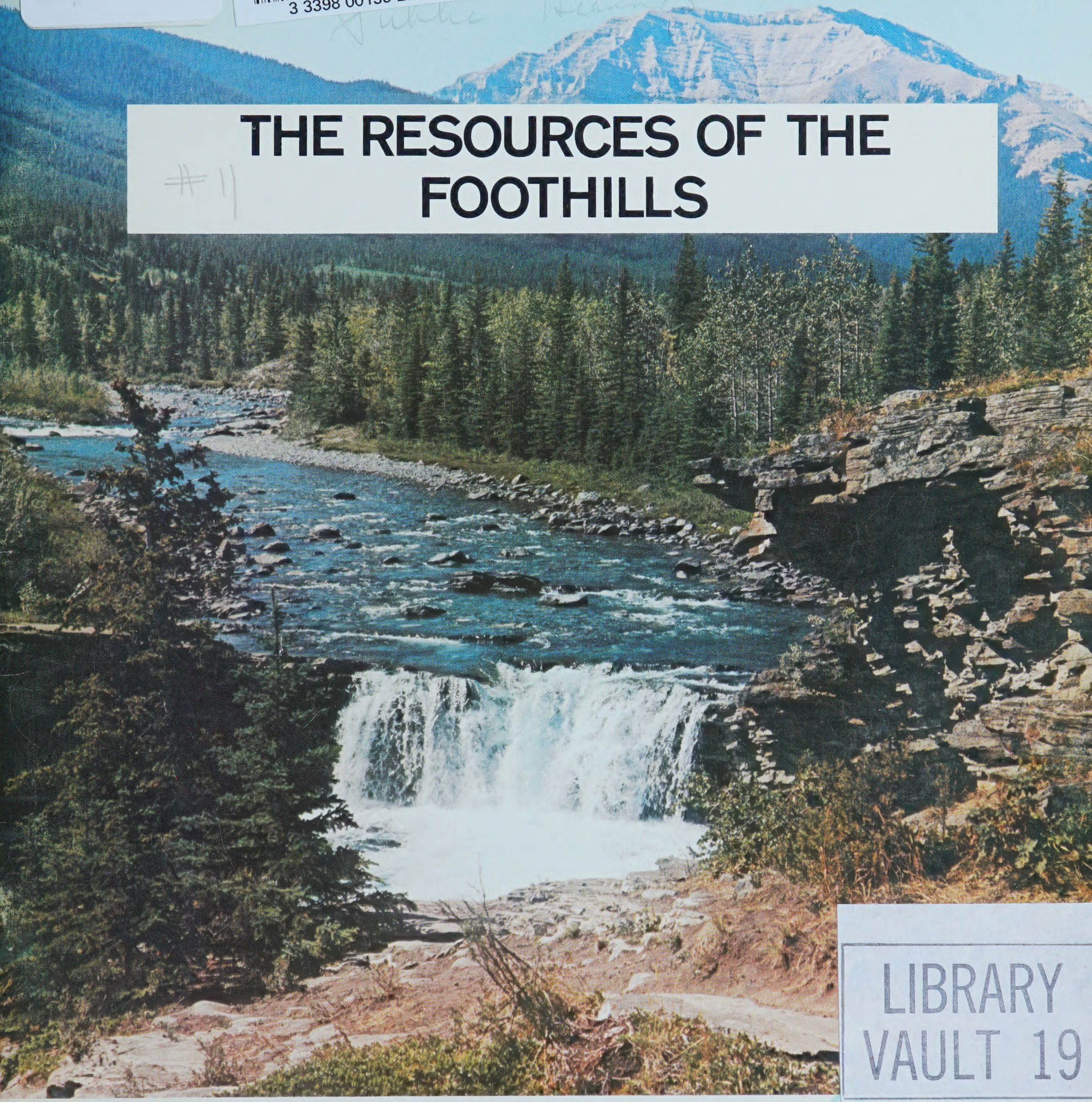
CA2 ALEV 5
1973I5110
c.1

CA2 ALEV 19 1973B10
Resources of the Foothills: a Choice of
Land Use Alternatives - Informatio 1
3 3398 00135 2904

Information bulletin No. 11

Public Hearings



THE RESOURCES OF THE FOOTHILLS

#11

LIBRARY
VAULT 19

Alberta
LANDS AND FORESTS
ENVIRONMENT

A CHOICE OF LAND USE ALTERNATIVES

c1
MAY 28 1973
LIBRARY
EDMONTON

Digitized by the Internet Archive
in 2024 with funding from
Legislative Assembly of Alberta - Alberta Legislature Library

The Resources of the Foothills:

A Choice Of Land Use Alternatives

ALBERTA PROVINCIAL LIBRARY
MAY 28 1973
EDMONTON

Prepared for the

ENVIRONMENT CONSERVATION AUTHORITY

by

The Conservation and Utilization Committee
Task Force on the East Slopes Hearings

approved and published
under the authority of

HONOURABLE DR. A. A. WARRACK, P. Ag.
Minister of Lands & Forests

HONOURABLE W. J. YURKO, P. Eng.
Minister of the Environment

This document has been prepared to facilitate public discussion at the Environment Conservation Authority's public hearings on land use and resource development on the East Slopes. The document does not necessarily reflect current government policy.

May 4th, 1973.

To: Dr. E. E. Ballantyne, Chairman,
Natural Resources Co-ordinating Council.

Sir:

Re: The Resources of the Foothills: A Choice of Land Use Alternatives

On behalf of the Conservation and Utilization Committee, I have the pleasure of submitting a discussion paper prepared to provide information and suggestions for citizens preparing briefs to the Environment Conservation Authority Eastern Slopes Public Hearings.

The strategies suggested in chapter 5 do not reflect government policy. They are presented in order to stimulate thought and discussion.

Yours truly,

H. W. THIESSEN, Chairman,
Conservation and Utilization Committee.

May 4th, 1973.

To: The Honourable W. J. Yurko, P.Eng.,
Minister of the Environment,
Government of Alberta.

Sir:

The undersigned has the honour to transmit herewith **The Resources of the Foothills: A Choice of Land Use Alternatives.**

The role of the Natural Resources Co-ordinating Council is to make recommendations to the Government on matters pertaining to the environment and natural resource management in order that government policy may be formulated.

This document is intended to provide factual technical data and suggested strategies which may be of interest to those preparing submissions to the Environment Conservation Authority Eastern Slopes Public Hearings.

They do not necessarily reflect current government policies. The guidance, counsel and detailed work of the Conservation and Utilization Committee Task Force is hereby acknowledged.

Respectfully submitted,

E. E. BALLANTYNE, D.V.M., P.Ag., F.R.S.H.
Chairman, Natural Resources
Co-ordinating Council.

Digitized by the Internet Archive
in 2024 with funding from
Legislative Assembly of Alberta - Alberta Legislature Library

https://archive.org/details/ableg_33398001352904

ACKNOWLEDGEMENTS

The contributions of the members of the Conservation and Utilization Committee Task Force on the East Slopes Hearings in preparing this discussion paper are hereby acknowledged:

Chairman: H. W. Thiessen, Department of the Environment

Secretary: J. J. Nowicki, Department of Lands and Forests

Members: V. E. Bohme, Energy Resources Conservation Board

L. J. Cooke, Department of Municipal Affairs

N. B. Dant, Department of Municipal Affairs

M. J. Day, Department of Mines and Minerals

M. J. Dolinsky, Department of Highways and Transport

D. G. Harrington, Department of the Environment

D. A. Hayes, Travel Alberta

A. G. McDonald, Department of Federal and Intergovernment Affairs

J. L. Snary, Department of Industry and Commerce

J. E. Wright, Department of Industry and Commerce

TABLE OF CONTENTS

INTRODUCTION

CHAPTER 1

ISSUES OF LAND USE POLICY 15
- Balancing Multiple Goals 15

CHAPTER 2

CAPACITY OF THE FOOTHILLS TO SUPPLY RESOURCES 16
- Areas of Resource Concentration 16
  - Map 1: Big Game Resource (Ungulates) 16
  - Map 2: Recreation Resources 16
  - Map 3: Vegetation Resources 19
  - Map 4: Watershed Resources 19
  - Map 5: Subsurface Resources 20
    - Oil and Natural Gas 20
    - Coal 20
    - Industrial and Metallic Minerals 20
    - Archaeology 20

CHAPTER 3

PRESENT LAND USE 25
- Indefinitely Committed Land 25
- Long-term Commitments Related to Non-renewable Resources 25
- Map 6: Short-term Commitments related to Non-Renewable Resources 26
- Long-term Renewable Resource Commitments 26
- Short-term Renewable Resource Commitments 26

CHAPTER 4

DEMAND FOR RESOURCES IN THE STUDY AREA 27
- Metallic and Non-Metallic Minerals 27
- Oil and Natural Gas 27
- Grazing 27
- Fish and Wildlife 27
- Forestry 28
- Coal 28
- Recreation 29

TABLE OF CONTENTS (cont'd)

CHAPTER 5

POSSIBLE STRATEGIES FOR DEVELOPMENT OF THE FOOTHILLS 30
- Management Strategy A 30
- Management Strategy B 30
- Management Strategy C 31
- Management Strategy D 31
- Management Strategy E 31
- Points of Concern in Developing Goals for the Foothills 32
- Conclusion 32

APPENDIX A—RESOURCE SUPPLY IN SOUTHERN and NORTHERN FOOTHILLS REGIONS 33

TABLE I: Capability to Supply Resources — Southern Foothills Region 34

TABLE II: Capability to Supply Resources — Northern Foothills Region 35

TABLE III: Capability to Supply Resources — Northern and Southern Foothills Regions 36

TABLE IV: Capability to Supply Resources — Northern and Southern Foothills Regions 37

TABLE V: Capability to Supply Resources — Northern and Southern Foothills Regions 38

TABLE VI: Capability to Supply Resources — Northern and Southern Foothills Regions 39

APPENDIX B—SUMMARIES OF EXISTING RESOURCE SUPPLY IN CENTRAL FOOTHILLS REGION 41

TABLE I: Total Gross Timber Volume in Central Foothills Region 42

TABLE II: Oil and Natural Gas Reserves in Central Foothills Region 42

TABLE III: Coal Reserves in the Central Foothills Region 43

APPENDIX C—ESTIMATED DENSITIES OF BIG GAME UNGULATES IN THE FOOTHILLS AREA 43

PREFACE

On June 30, 1972 Dr. W. R. Trost, Chairman, Environment Conservation Authority, requested the Conservation and Utilization Committee to assist the Authority in the preparation of the pre-hearing publications. This discussion paper has been prepared by the Committee in direct response to this request.

INTRODUCTION

Now more than ever a large number of demands are being made on the resources of the eastern slopes of the Rocky Mountains in Alberta. Industrialists, conservationists, tourists, hunters, and many other groups have interests in the area that are not always compatible. The time has come for a full evaluation of the needs and wants of the people of Alberta, and of the ability of the eastern slopes to supply those needs. Recognizing the necessity for such an evaluation, the Government of Alberta is seeking an expression of the public's preferences for the future use of the area.

The public will have the opportunity to present its views at public hearings to be held by the Environment Conservation Authority in Alberta during June and July of 1973. The Authority will present recommendations to the Government of Alberta for its consideration in the making of policies, legislation, plans, and programs to guide the development of the eastern slopes.

The views put forth by the public at the hearings will be viewed as an expression of social values; and these values, along with information now being gathered on the capacity of the land to meet certain demands and on economic factors, will form the basis for planning land use on the eastern slopes.

CHAPTER 1

ISSUES OF LAND USE POLICY

The demands of Albertans for the resources of the eastern slopes are steadily increasing, because of growing population, more affluence, and new social values which place great value on consumption as well as on conservation. The use of any resource inevitably has consequences on our ability to use other resources, and as active use of the land increases we must proceed more and more carefully. The most obvious such conflict is the effect on wildlife and natural beauty of the extraction of mineral resources, but there are many other problems of multiple use of land.

Obviously before conflicts can be resolved Albertans must establish their priorities. They may then approach the problems of land use on the eastern slopes with a knowledge of how much damage to environmental quality they are willing to accept in order to maintain or increase present levels of technology. They may set up institutions and guidelines that limit the use of certain resources in certain areas, which insure that all resources are managed for the greatest net benefit, or yield whatever effects they deem necessary. Albertans can develop institutions or procedures that limit, specify or enlarge their choice of land resource and environmental management practices. It must be realized however that whatever objectives are embarked upon appropriate trade-offs in economic and environmental quality terms will have to be made.

Balancing Multiple Goals

While economists have developed yardsticks with which to measure such things as gross national product or full employment, no well-defined and agreed-upon standards exist by which we can judge the relative merits of different resource uses or by which we can evaluate the damage to one resource caused by the use of another. Without clear definitions of such values or the means of measuring them, planning the use of resources is a difficult and subjective process. For example, how are we to judge the amount of damage to the environment which is an acceptable consequence of the extraction of a necessary mineral?

As we proceed to meet the urgent needs for improving policy which guides resource use and protects environmental quality in the eastern slopes of the Rockies, the accompanying increases in cost will likely meet resistance from many of the same people who presently support improvements in land use policy. As the costs associated with new policies press on producers, as the prices of products reflecting improvement costs press on consumers, as taxes press on taxpayers, and as policy measures restrict individual freedoms in resource use, voluntary support and enthusiasm may well diminish—unless improvement policies and programs are founded on and supported by facts and logic widely understood and accepted by Alberta's citizens. These issues will be decided in public discussions through public hearings and open forums, as well as in the legislative, executive and judicial processes of the Government of the Province of Alberta. Support for the enforcement of these decisions, however, rests with the general citizenry of Alberta. Citizens' support and compliance, in turn, depends on how well citizens are informed about these important, yet complicated issues. How well people are informed, in turn, depends on their searching out the relevant information.

The discussion that follows examines four factors that the Government of the Province of Alberta recognizes to be relevant to public hearings on land use and resource development of the eastern slopes of the Rocky Mountains. The first factor is the capacity of the eastern slopes to supply resources, with a discussion focusing on big game (ungulates), recreational, vegetative, watershed and subsurface non-renewable resources. The second factor is present land uses in the eastern slopes, with a discussion focusing on the duration of present land use commitments. The third factor is the demand for the resources of the eastern slopes, with the discussion focusing on the demand for metallic and non-metallic minerals, oil and natural gas, grazing, fish and wildlife, forestry, coal and recreation resources. The fourth factor is the land use alternatives and opportunities within the eastern slopes, with the discussion focusing on five possible development strategies, and the over-riding considerations that must be considered in formulating a strategy for the eastern slopes.

CHAPTER 2

CAPACITY OF THE FOOTHILLS TO SUPPLY RESOURCES

The capacity of the various parts of the foothills to supply resources is shown on a series of maps. The basis of these maps is an inventory of the resources in each quarter-section of land in the foothills. In the accompanying maps these values are simplified so as to give a general picture of where the resources are, or could be, abundant and where scarce.

AREAS OF RESOURCE CONCENTRATIONS

Map 1: Big Game Resource (Ungulates)

Land suited to or heavily used by the various ungulate species is shown. Species considered are elk, bighorn sheep, white-tailed and mule deer, mountain goat, woodland caribou, and moose. The map indicates the high quality and large extent of favourable habitat for these species along the entire length of the foothills. Key ranges (where the animals absolutely require the range if existing herds are to survive) are interspersed throughout the region and are generally associated with extensive high-potential areas. These ranges are usually confined to major river valleys. South of the Bow River approximately 50% of the area has high-potential ungulate range while perhaps 25% is key range and 25% has only moderate potential. Along the inner foothills and mountains between the Bow River and the Brazeau the relative proportions are similar, but along the outer foothills the percentage of key range drops significantly, as does the high-capability range. The percentage of land having moderate potential for ungulates picks up the difference. Some areas in the headwaters of the Cline and Brazeau Rivers, however, are considered to have no potential.

The inner foothills from the Brazeau River north through the Athabasca River area to the Smoky River area have extensive high-potential ungulate ranges with excellent winter ranges in most of the river valleys. Rocky Mountain bighorn sheep and Rocky Mountain goats are concentrated in the Athabasca River area immediately adjacent to the front ranges. The outer foothills have primarily moderate potential for ungulates with significantly less winter range available.

Extensive key ranges appear in the Willmore, Kakwa and Smoky River areas. The Willmore area and part of the Kakwa headwaters are particularly favoured by woodland caribou while the remaining key ranges in this northern region are more used by elk, deer and sheep. In addition to the key ranges the northern region has an equally large area rated as high-capability ungulate range which is not considered critical to the survival of the existing populations. A very small area in the west Willmore has a low potential while perhaps 30% is considered only moderately productive ungulate habitat.

Map 2: Recreation Resources

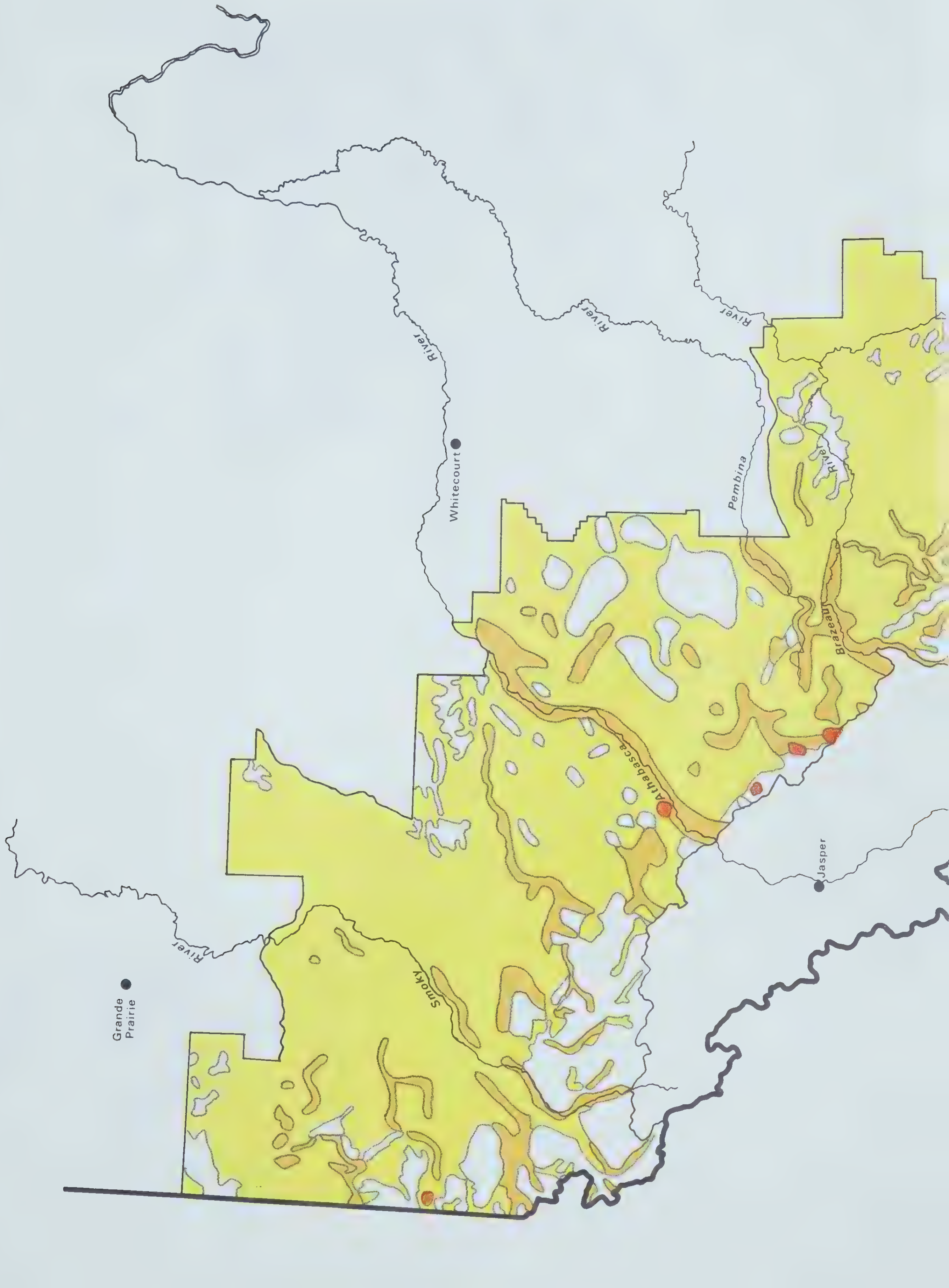
A glance at the map showing the land's suitability for recreational use confirms the suggestion that the foothills belt, regardless of what else it is considered for, certainly merits consideration for this purpose. Except for about 15% of the region the recreational potential is considered moderately good or very good. The low ratings are basically concentrated on the intermediate mountain ranges where the scenery is not so spectacular as the main ranges and in areas of low, forested topography where the main recreational attractions are of a very dispersed nature. Low potential ratings also occur along the shoreline of the large Brazeau Dam reservoir.

At the other extreme, sites having excellent recreational potential are concentrated in the western portion of the region. These sites are scattered in a narrow belt adjacent to the Front Ranges and are associated with the high relief which provides excellent opportunities for activities such as skiing, scenery appreciation, hiking, and spelunking. The main excellent ratings are in the vicinity of the West Castle, Vicary Creek, Dutch Creek, Cataract-Etherington Creeks, Plateau Mountain, Kananaskis Lakes, Spray Lake, Cline River, Pinto Lake, Mountain Park, Coral Creek and Kakwa Falls. Several other small but excellent sites exist generally associated with bodies of water or streams offering superior camping settings.

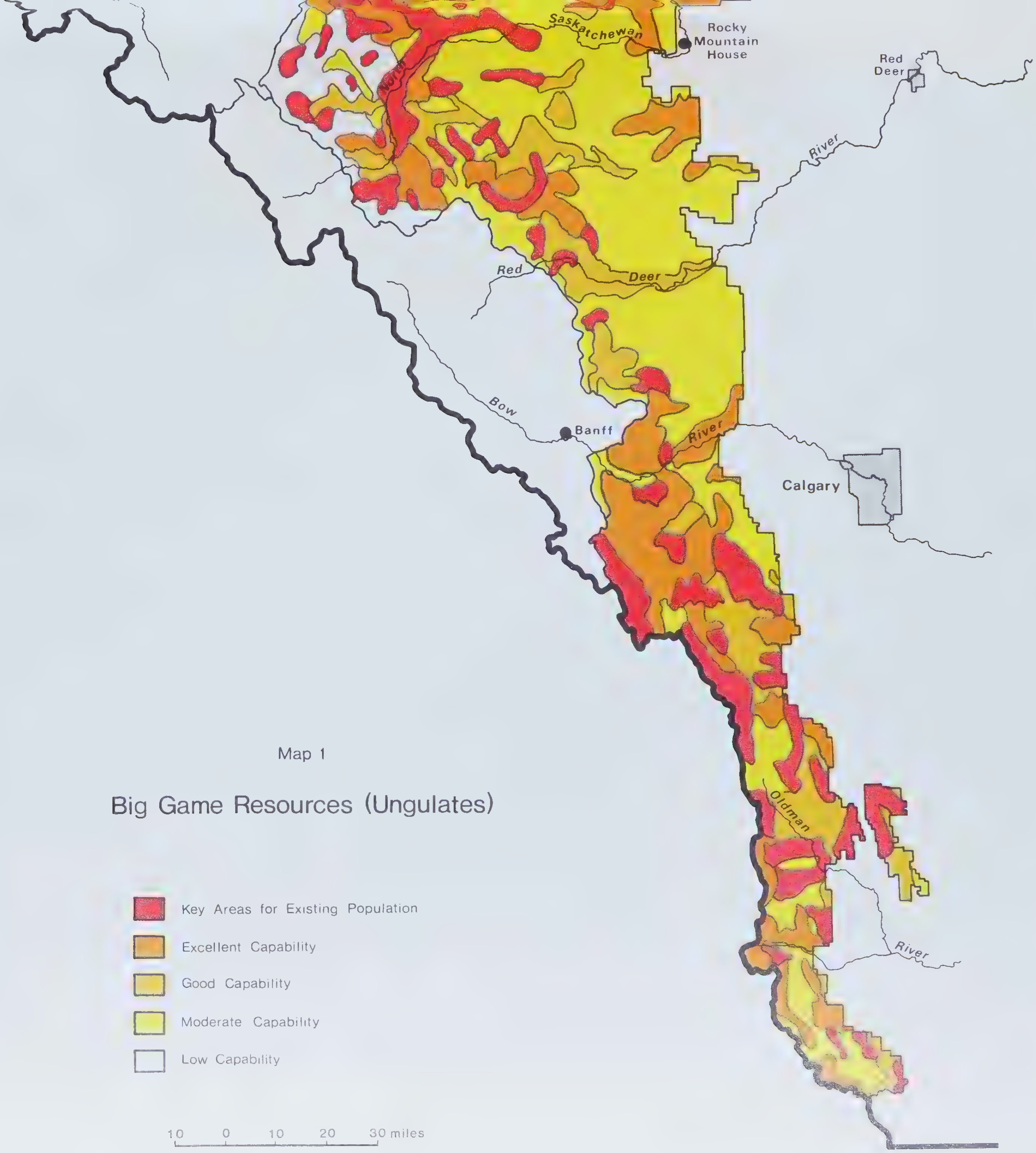
Good recreation potential is shown on more extensive areas. These areas occur on the very recreationally adaptable foothills south of the Bow River as well as along the main valleys and gaps in the higher mountains along the

10
0
10
20
30 miles

Map 1

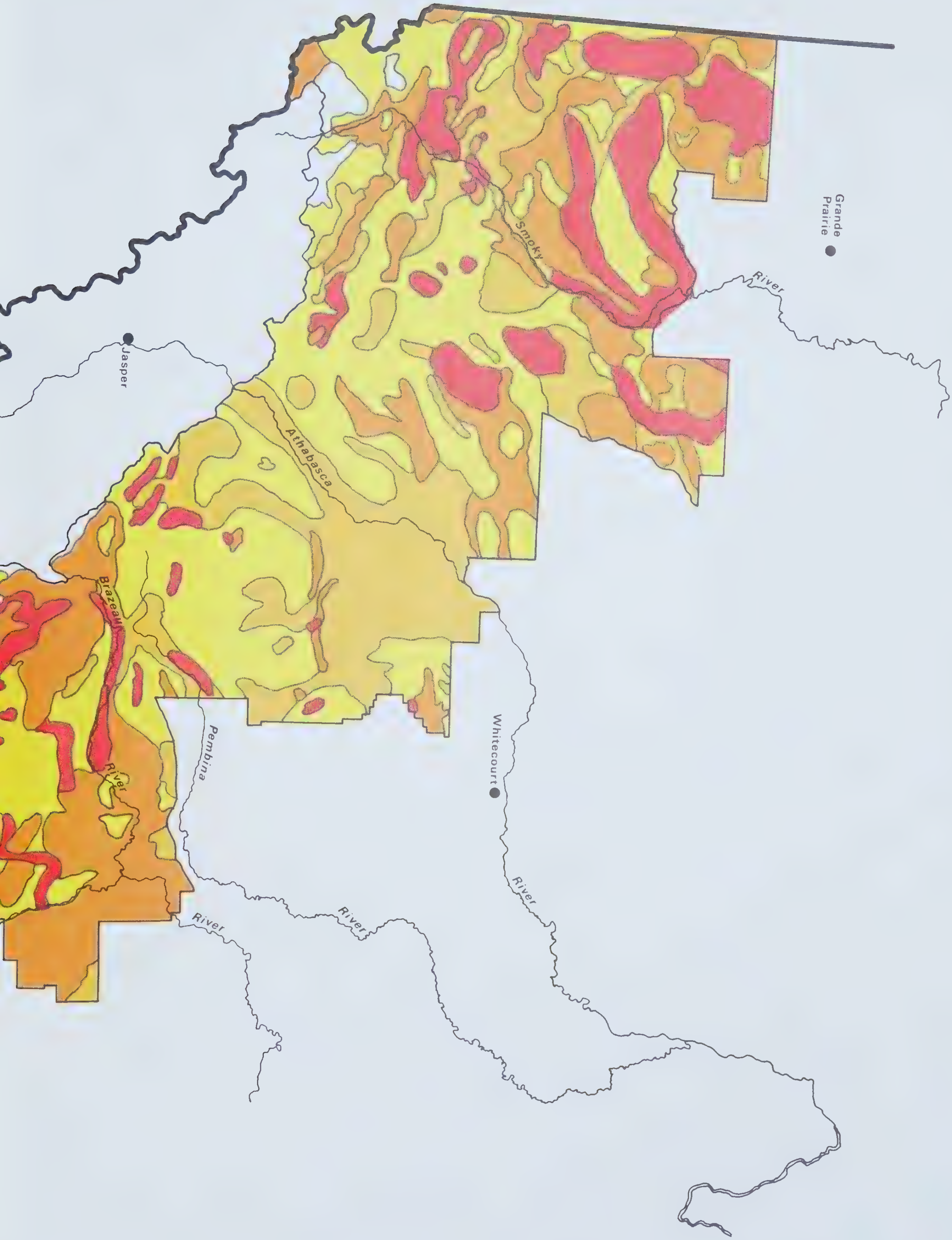

River
River
River
Whitecourt
Pembina
River
Brazeau
Athabasca
Jasper
River
Smoky
Grande Prairie

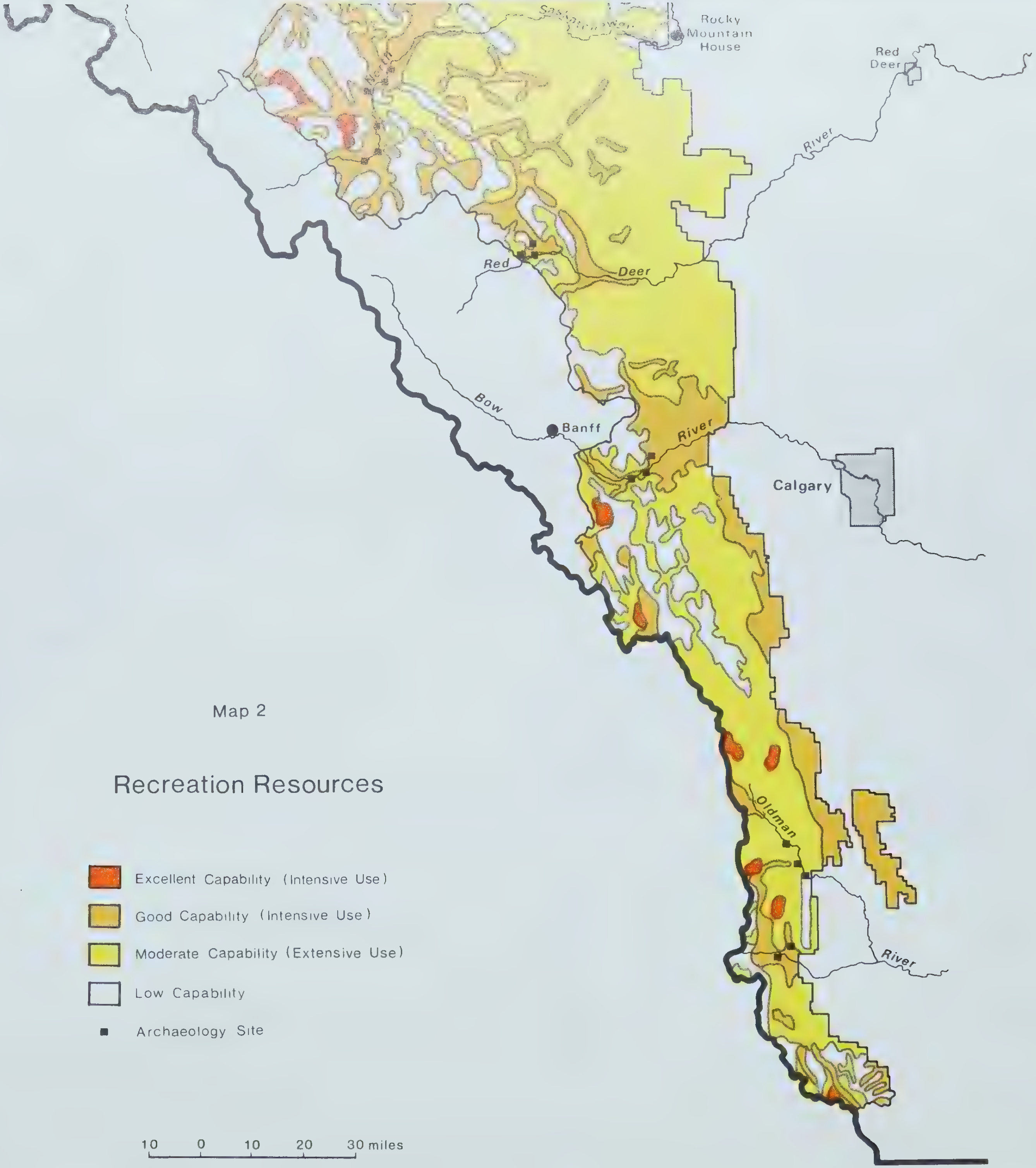
Map 2



Map 1

Big Game Resources (Ungulates)


Grande Prairie
Smoky
River
Jasper
Athabasca
Brazeau
River
Pembina
River
River
Whitecourt
River



Map 2

Recreation Resources

entire length of the foothills belt. These areas are very appropriate for moderately intensive uses such as picnicking, scenery appreciation and hiking but most of all for camping.

If big game and sport fish are considered recreational attractions there are few areas along the entire foothills belt where recreation would not be rated high. In fact the sport fish resource alone is adequate to put many of the stream bank areas into the excellent recreational range. Big game, whether considered for viewing, photographing or for hunting, offers a significant attraction to the individual enjoying his leisure.

Map 3: Vegetation Resources

Forests and grasslands along the foothills belt occupy all surfaces except for the bare rock ridges and water-covered areas. Both forest and grassland resources in the outer foothills are superior to the steeper slopes and higher elevations of the mountain ranges. Bands of highly productive forest land occupy the major valleys along the western margin of the foothills belt but extensive areas of highly productive forest land are shown east of the Brazeau and Ram Ranges. The most productive forest land in the southern area is indicated in the vicinity west of Drayton Valley. In the central region, the Coal Branch and the Athabasca and McLeod River areas have extensive lands with good to excellent potential for forest production. The potential of the remainder of the region is very limited. In the northern region superior forest land appears mainly north and west of Fox Creek. Large parts of the White Goat, Siffleur, Ghost, and Willmore Wilderness areas are non-productive for trees. Also in this category are several mountain ranges such as the Ram, Opal, Misty, Kananaskis, Highwood and Livingstone Ranges plus of course the main ranges of the continental divide south from Spray Lake.

The grassland areas are superior along the foothills-plains interface from Waterton Lakes National Park, northward as far as the Pembina River. The better areas for livestock grazing occur southwest from Calgary but significant areas near Rocky Mountain House, Sundre, and Stony Indian Reserve have moderately good grassland or browse cover suitable for livestock. Isolated units of somewhat better grazing land occur in some of the main valleys of the western mountain ranges also. West of Fox Creek a substantial area suitable for livestock is shown. Moderately good livestock range appears south of Grande Prairie and also north and east of Musreau Lake. Notwithstanding any of this it is farily exact to state that a moderate potential for livestock grazing exists on approximately 80% of the area east of the front ranges.

In most respects the existing tree cover parallels the land's productive potential. However, there are far fewer locations having marketable trees at the present time than there are areas with a potential to grow trees. The situation indicated on the map is that about 5% of the Southern Foothills Region has good forest cover while possibly 25% has moderately good cover. The area south of the Bow River has very little merchantable cover while the area north of it is substantially better except for the Clearwater and Red Deer areas. The forest cover in the central foothills region is significantly better than that of the southern region. Virtually all of the region has either good or moderately good forest cover in terms of merchantable sawtimber production with this potential being even greater for pulpwood production. The area between the Athabasca and Berland Rivers contains the best forest cover in the region. In the Northern Foothills Region merchantable timber is concentrated north of the Berland and West to the British Columbia border. The current forest cover here is significantly superior to what exists in the south.

Map 4: Watershed Resources

Watershed, the declared primary resource of the Rocky Mountains Forest Reserve, is rated moderate or high throughout the mountainous part of the foothills belt. Only the more gently sloping or flat areas to the east have low ratings. The high ratings appear particularly in the headwaters of the Castle River, the Livingstone-Oldman headwaters, the Upper Kananaskis River area particularly along the B. C. border, the headwaters of the Ram River and large parts of the Athabasca, Smoky, and Kakwa Rivers. These are areas which supply a high proportion of their total precipitated moisture as streamflow. However, the entire zone including the mountains and inner foothills is important for water supply. As long as downstream demands exist for water the watershed qualities of these areas must be carefully guarded.

The foothills and mountain region provides Albertans with an opportunity for native trout fishing. Numerous streams and occasional lakes have excellent potential for producing preferred species of sport fish. Brook trout, cutthroat, rainbow and Dolly Varden as well as others abound or at least the waterways have a good potential for production of these species. The most highly rated streams for sport fishing are the Castle, Livingstone, Oldman, Crowsnest, Highwood, Bow, Ghost, Clearwater, Nordegg and Blackstone. Although the same detail of information is not available for the McLeod and Pembina, these too are basically good sport fishing streams. Nearly all remaining permanent streams are considered very capable or moderately capable of producing sport fishing species. The major rivers such as the Red Deer, North Saskatchewan and Smoky are somewhat poorer than the tributaries.

Waterfowl are not heavily dependent on the foothills and mountains either for nesting or as a migratory route. This is basically related to the short open water season on the high elevation waterbodies but is also related to the shortage of waterbodies suitable for waterfowl habitat. Locations which are moderately suited to waterfowl, however, include Kangienos Lake, Chiniki Lake, Swan Lake, Cow Lake, Medicine Lake, Brazeau Dam, Musreau Lake and Karr Lake.

Map 5: Subsurface Resources

OIL AND NATURAL GAS

Except for a few proven reservoirs of natural gas in the mountains all of the oil and gas potentials are located along the foothills. Moderate potential is indicated throughout the inner and outer foothills and high potentials are shown in the vicinity of all the major producing oil and natural gas fields. These are mostly located along the eastern fringes of the mapped region.

COAL

The coal resources are clearly related directly to the outer mountain ranges. Moderate potential is common from the Crowsnest area northward with numerous bands of high-potential seams identified along this same belt. Five significant areas appear: the Livingstone-Oldman-Highwood area, the Kananaskis-Canmore area, the Nordegg-Bighorn area, the Coal Branch area and the Smoky River area. Of these the Coal Branch, Canmore and Grande Cache areas are being mined. A moderate-potential site north of the Crowsnest area is also being mined. Some of the moderate areas may yet prove to have mineable coal seams.

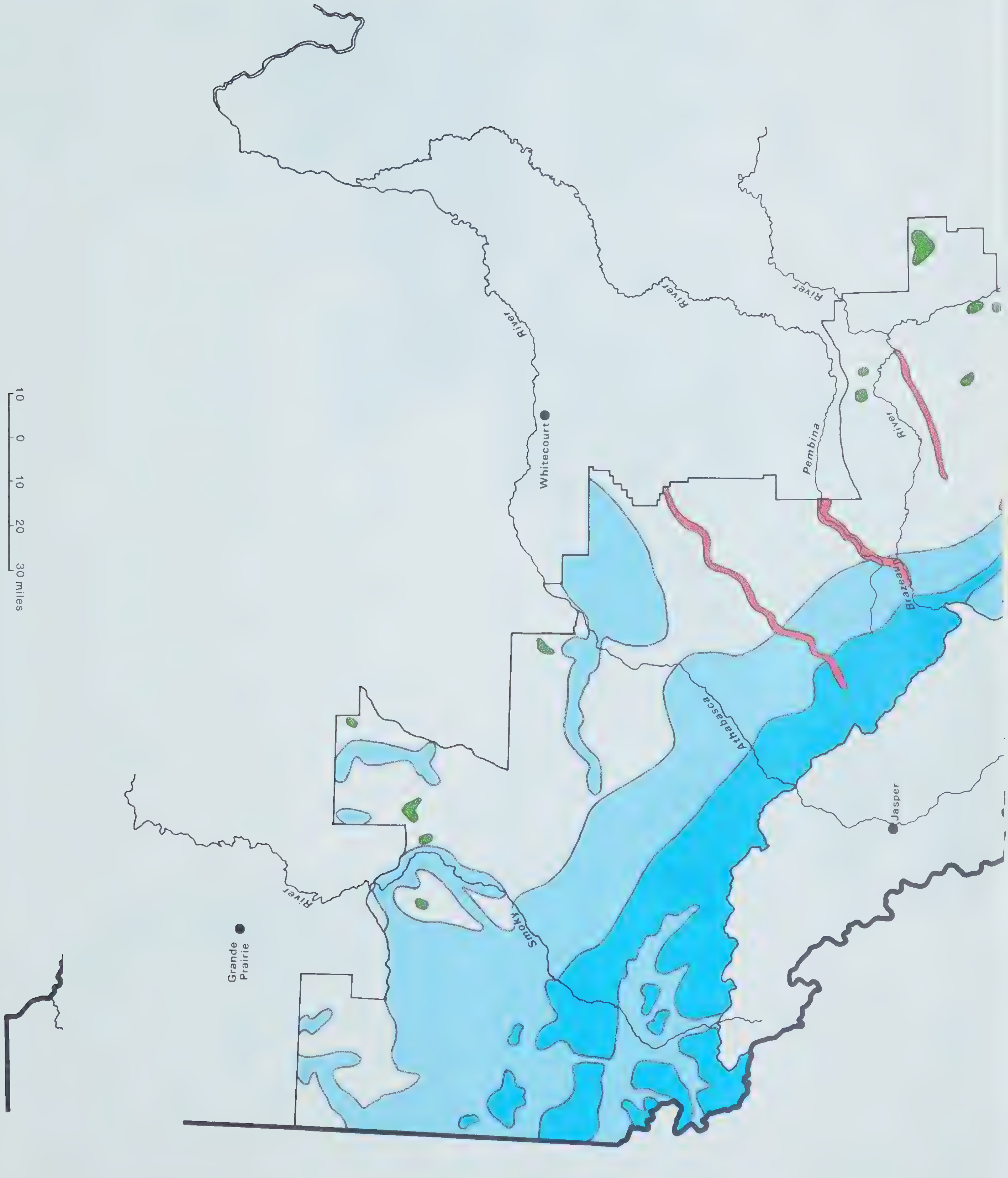
INDUSTRIAL AND METALLIC MINERALS

One site of moderate potential for metallic minerals appears in the southwest corner of the province, where there are indications of copper, lead, and zinc. It is unlikely to be of a high enough quality to merit development.

Industrial minerals are considerably more dispersed but have only been identified along accessible valleys. Two sites of high potential appear: one in the Bow valley and the other in the Crowsnest. Moderate potential areas appear in the same vicinity. The Kananaskis Valley also offers moderate industrial mineral potential. Where access to haul routes is not available the potential is not recognized.

ARCHAEOLOGY

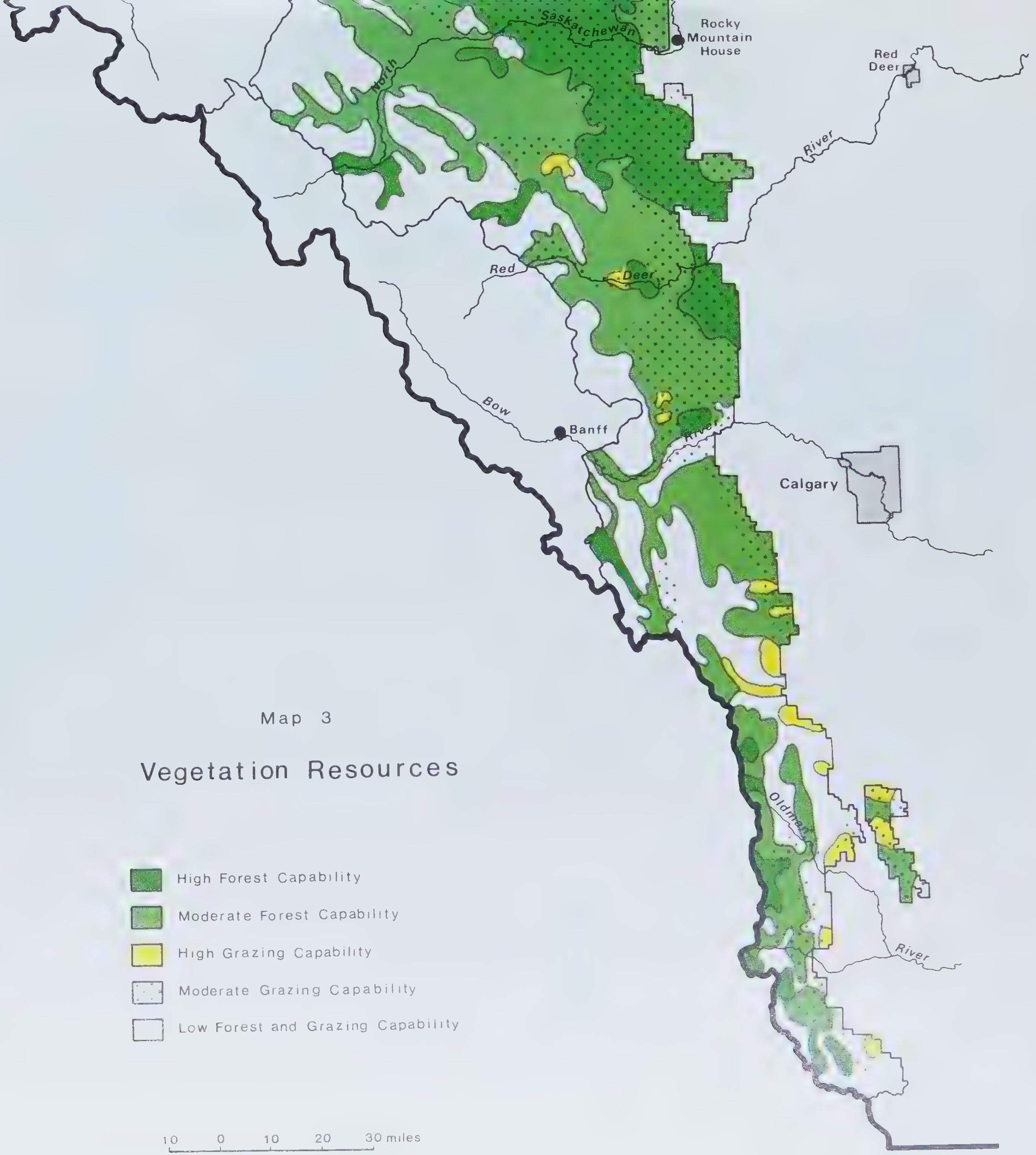
To some extent archaeological sites may be regarded as a recreational resource also. Several such sites have been identified. This resource requires protection rather than exploitation, however, and is really not considered available for use except by trained archaeologists.

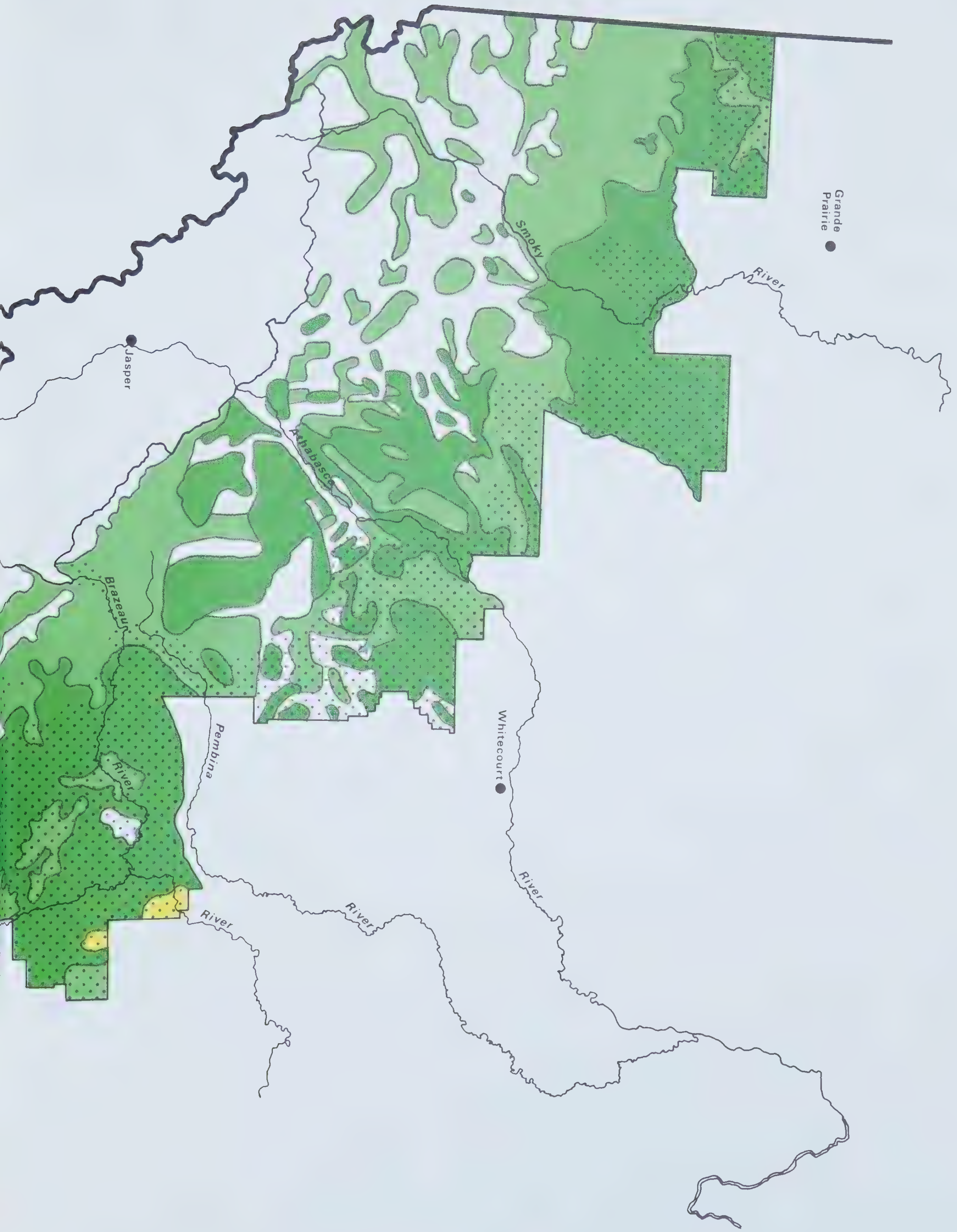

10
0
10
20
30 miles
River
River
River
Whitecourt
Pembina
River
Brazeau
Athabasca
Jasper
Smoky
River
Grande Prairie

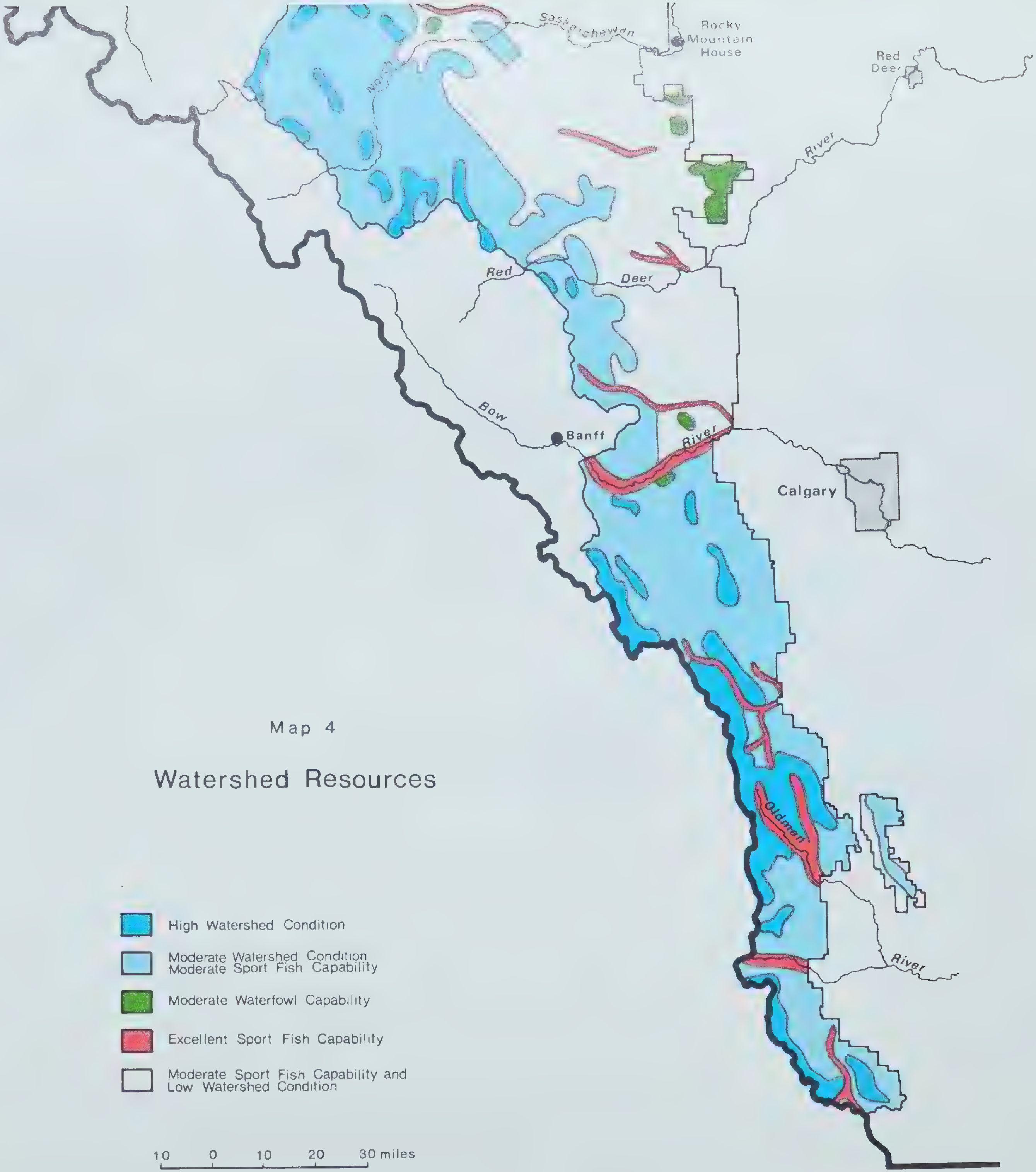
Map 3 **Map 4**

Map 3

Vegetation Resources



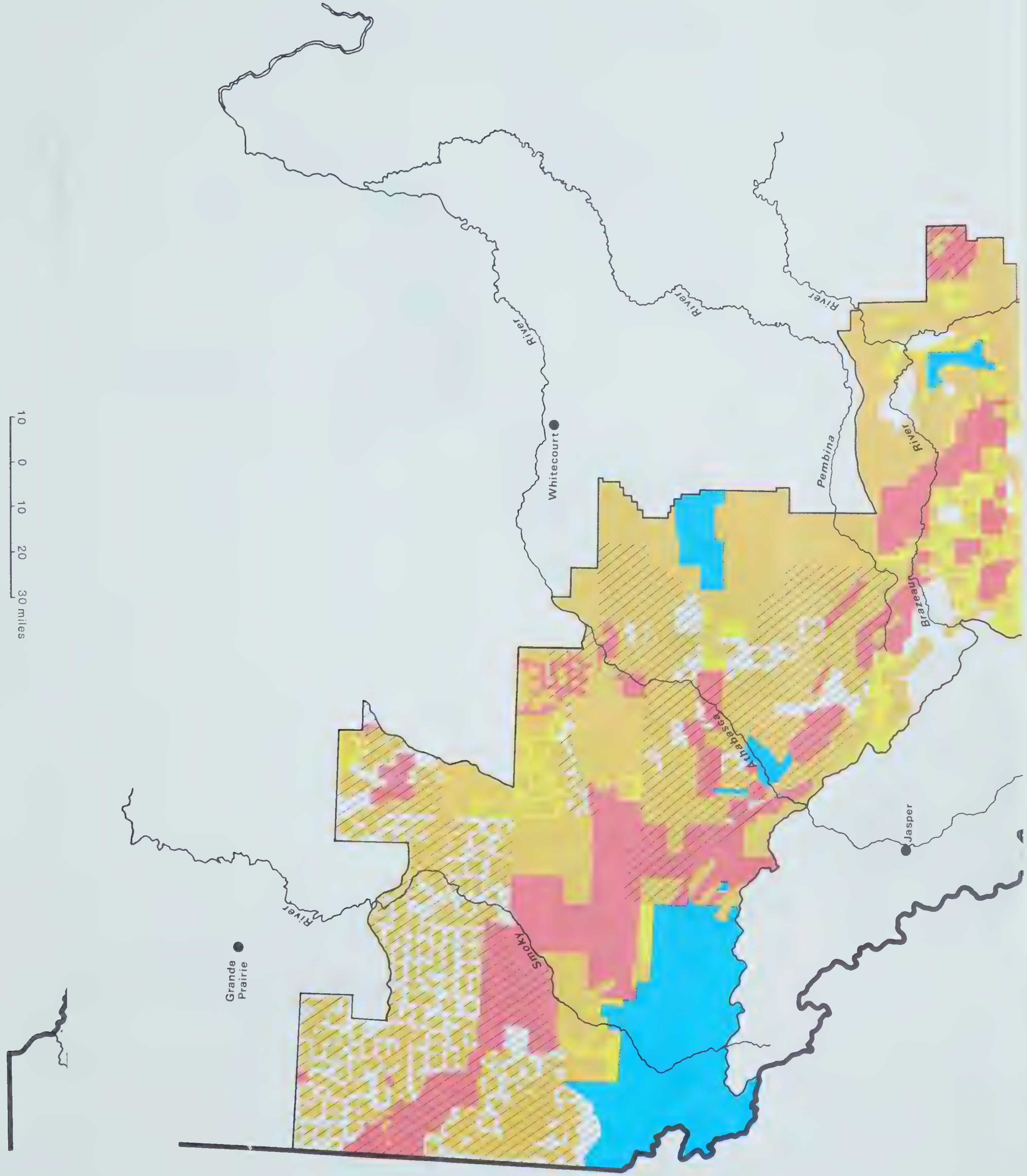

Grande Prairie
Smoky
River
Jasper
Athabasca
Brazeau
River
Pembina
River
Whitecourt
River
River



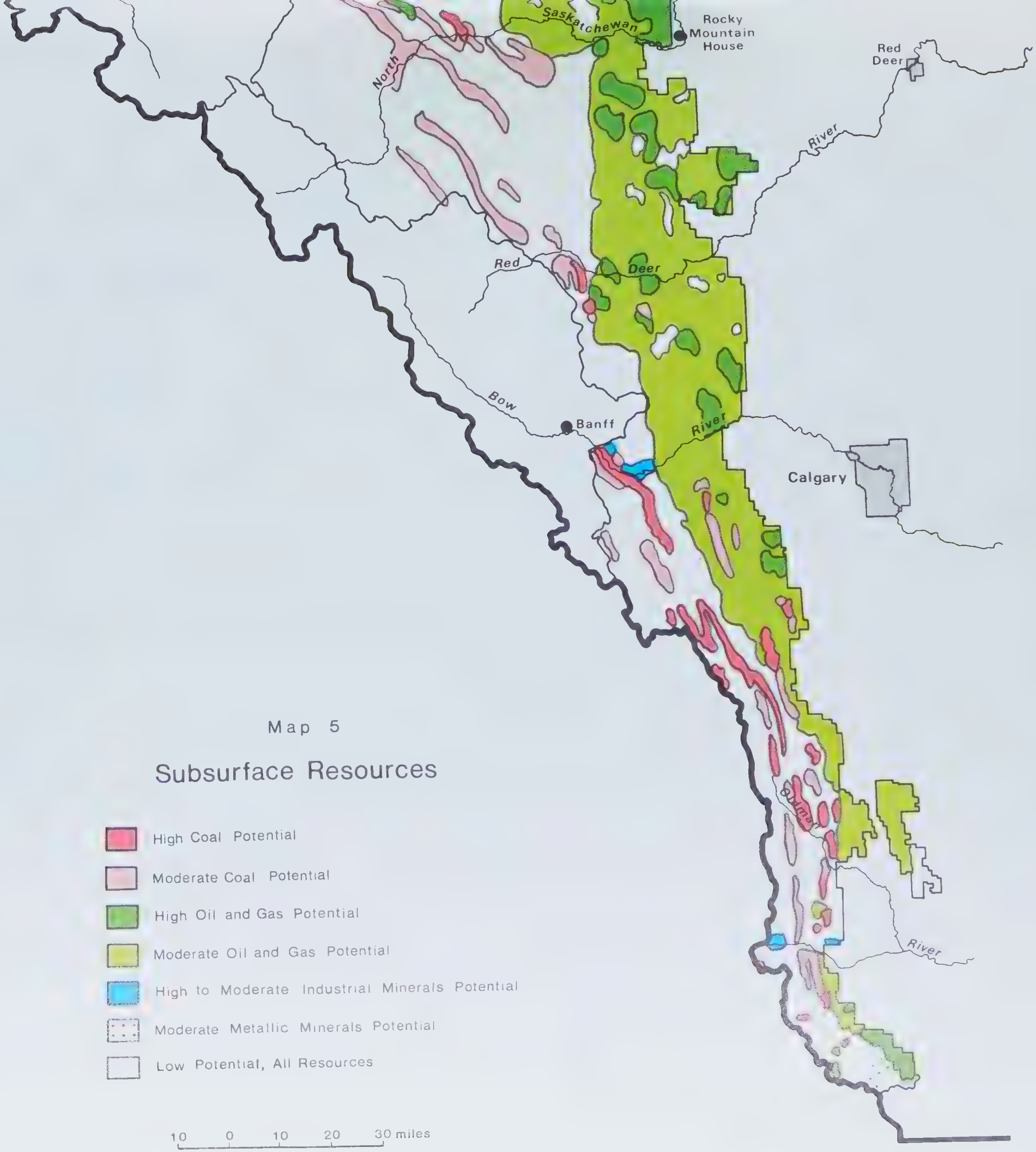
Map 4

Watershed Resources

Rocky Mountain House
Red Deer
Saskatchewan
North
River
Red
Deer
Bow
Banff
River
Calgary
Oldman
River
🟦 High Watershed Condition
🟦 Moderate Watershed Condition Moderate Sport Fish Capability
🟩 Moderate Waterfowl Capability
🟥 Excellent Sport Fish Capability
☐ Moderate Sport Fish Capability and Low Watershed Condition
10 0 10 20 30 miles


10 0 10 20 30 miles
River
Whitecourt
River
River
Pembina
River
Brazeau
Athabasca
Jasper
Smoky
River
Grande Prairie

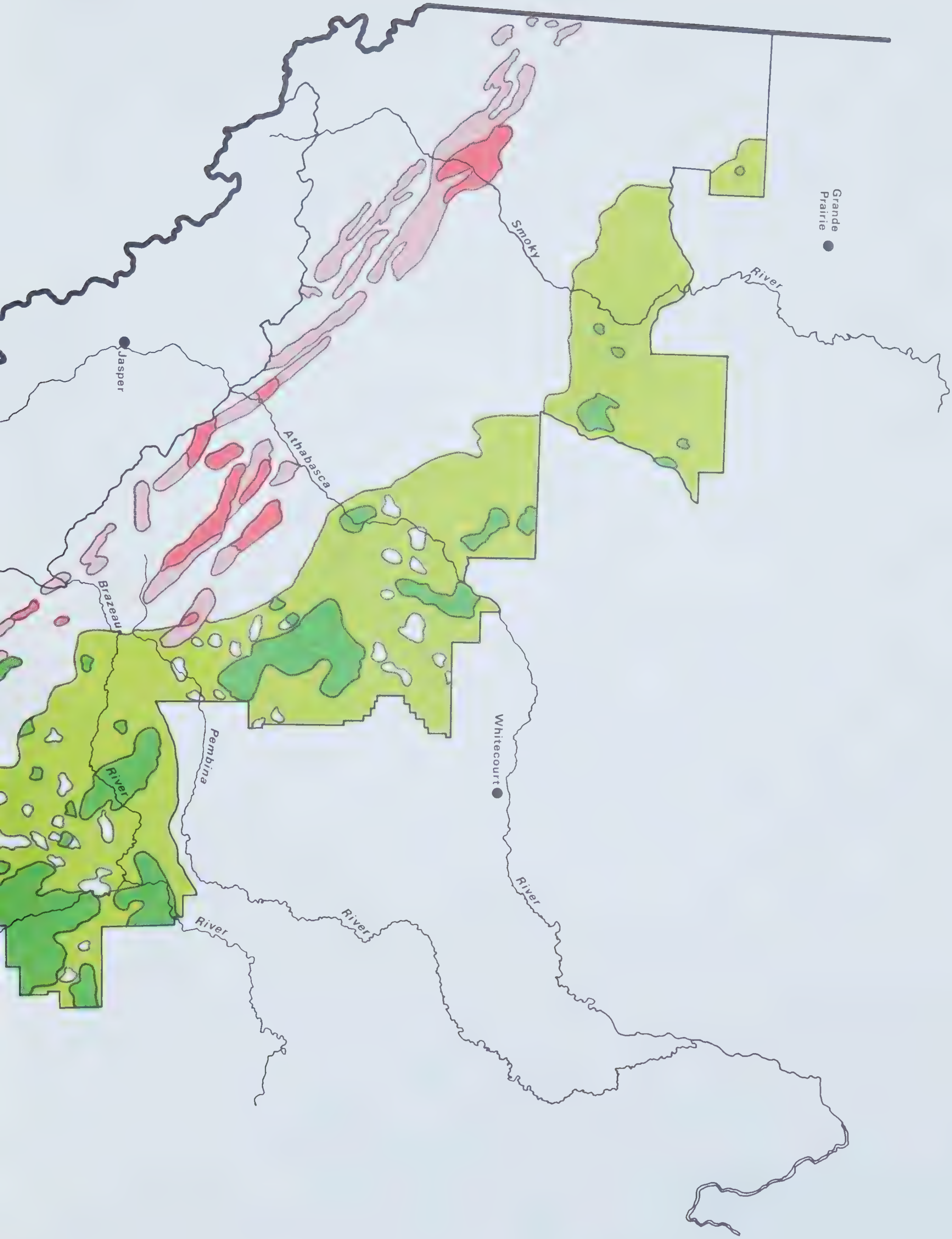
Map 5 Map 6

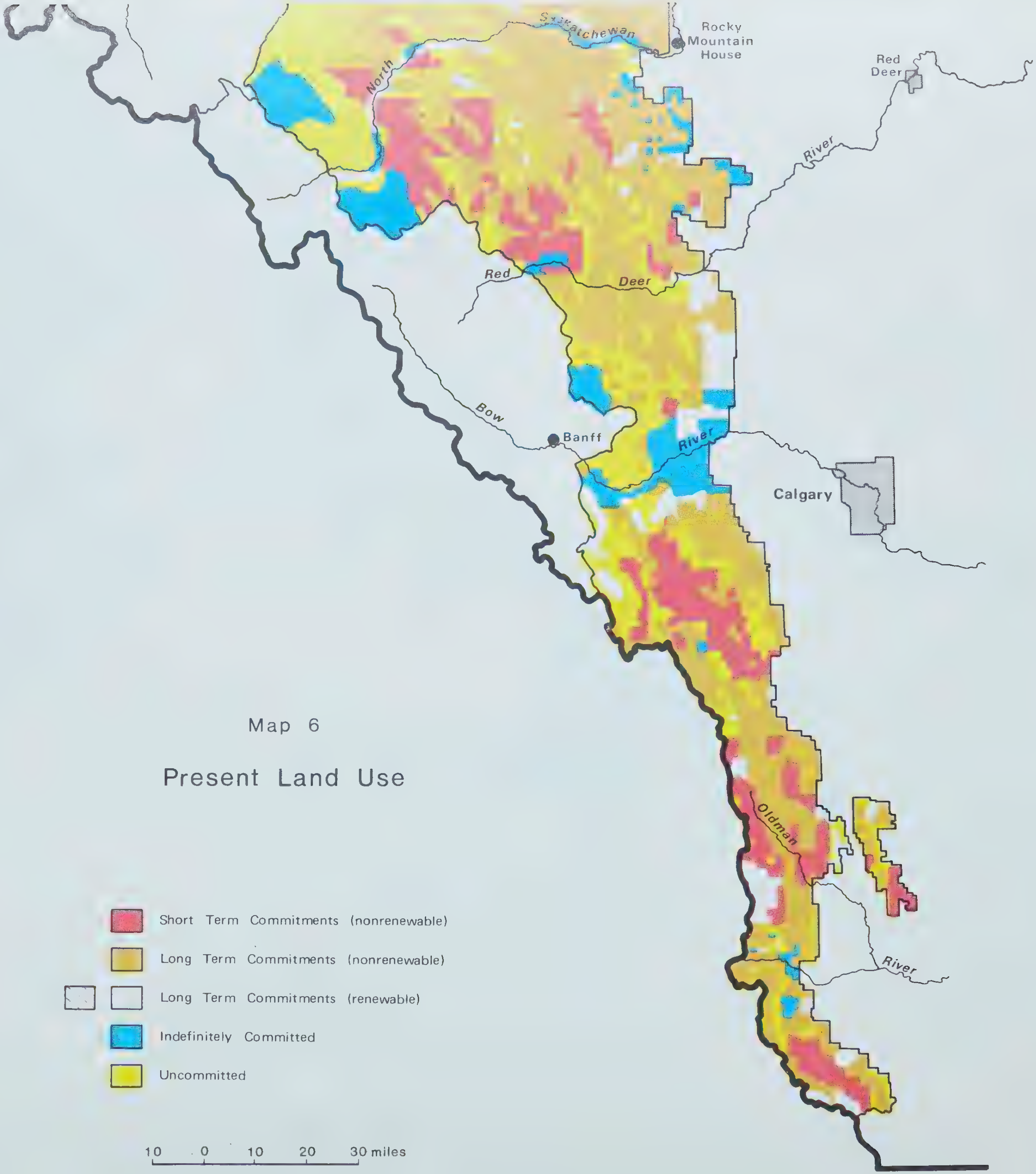


Map 5

Subsurface Resources

High Coal Potential
Moderate Coal Potential
High Oil and Gas Potential
Moderate Oil and Gas Potential
High to Moderate Industrial Minerals Potential
Moderate Metallic Minerals Potential
Low Potential, All Resources
10 0 10 20 30 miles
North
Saskatchewan
Rocky Mountain House
Red Deer
River
Red
Deer
Bow
Banff
River
Calgary
Oldman
River


Grande Prairie
Smoky
River
Jasper
Athabasca
Brazeau
River
Pembina
Whitecourt
River
River
River



Map 6

Present Land Use

CHAPTER 3

PRESENT LAND USE

All the land included in the foothills region was originally controlled by the Hudson's Bay Company and used as a source of furs and food. It was later acquired by the Government of Canada, which encouraged settlement. When Alberta became a province in 1905 the foothills were included, but the federal government retained the subsurface resources. These were transferred to the province in 1930. In 1947 the Eastern Rockies Forest Conservation Board was formed to provide management of resources on the east slopes, particularly watershed, as all three prairie provinces rely on the area as a source of water.

Since the time of the Hudson's Bay Company various dispositions of the land in the foothills have been made. Some parcels of land were sold, becoming patented land almost beyond governmental control. Before 1887 mineral rights could also be purchased outright. The Crown has retained possession of other lands, and grants leases, licenses, permits, and reservations for such activities as extraction of minerals, grazing, occupation, and so on. Large blocks have been set aside as Indian Reserves administered by the Government of Canada.

Approximately one-sixth of the foothills region remains uncommitted Crown Land; the remainder has been allocated through different types of dispositions of varying duration. Dispositions can be broken into the following five broad categories:

1. Indefinitely committed lands,
2. Long-term commitments related to renewable resources,
3. Short-term commitments related to renewable resources,
4. Long-term commitments related to non-renewable resources,
5. Short-term commitments related to non-renewable resources.

The type of activities permitted under each of these categories is briefly discussed below (see Map 6).

Indefinitely Committed Land

Approximately 5% of the foothills is indefinitely committed. Significant areas in the Crowsnest Pass, the Bow Corridor, the North Saskatchewan River Valley west of Rocky Mountain House and along Highway 16 east of Edson are privately owned patented lands. Use of this land is in many respects left to the discretion of the owners.

The area also contains the O'Chiese and Sunchild Indian Reserves northwest of Rocky Mountain House, the Bighorn Indian Reserve west of Nordegg and the Stony Indian Reserve west of Calgary. Indian Reserves have a similar status to privately-owned land.

Three wilderness areas, the 171-square-mile White Goat, the 159-square-mile Siffleur, and the 57-square-mile Ghost River are entirely within the Foothills Region . No dispositions of any type are permitted in these areas. Certain restrictions also apply to the Kakwa Falls, Kootenay Plains and Plateau Mountain Natural Areas and Entrance, Pembina River, Bow Valley, and Crimson Lake Provincial Parks. All these have been designated to special status by Order in Council. The Willmore Wilderness Park, established under the Willmore Wilderness Park Act (1959) also has special status which restricts a few activities from occurring there.

The Government of Canada has control over the Ya-Ha-Tinda Ranch and the Kananaskis Forest Experimental Station.

Long-term Commitments Related to Non-Renewable Resources

Resources considered under this category are largely oil, natural gas and coal but small amounts of sand and gravel, limestone and quartz minerals are also included. In small areas freehold rights are held on these minerals. Before 1887 an individual or company could acquire ownership of subsurface mineral rights. The freehold rights are held in perpetuity and the government has only limited control over the use of the minerals in these areas. Most of the mineral rights on the Indian Reserves were turned over to the Department of Indian Affairs and Northern Development when the reserves were established. These rights are owned by the Indian bands on the reserves but administered by the federal government.

Since 1887 all subsurface minerals not previously purchased have been retained by the Crown and the right to exploit them allocated through various dispositions. The most common long-term mineral dispositions are oil and gas leases of different types and coal leases. The various mineral dispositions are generally for periods of about 25 years but are renewable until exploitation of the resources is completed. Also included under the long-term dispositions are various permits and licences for buildings, right of entry and occupation of small areas. Approximately half of the foothills has been allocated through long-term commitments related to non-renewable resources.

Short-term Commitments Related to Non-Renewable Resources

This type of disposition includes licences, reservations and permits that are issued primarily for mineral exploration or preliminary work. These dispositions are convertible to long-term if sufficient resources are discovered. Time covered by these types of dispositions is variable from one month to one or more years and usually renewable from three to five years without conversion to long-term leases. About 15% of the foothills is covered by these short-term commitments.

Long-term Renewable Resource Commitments

Long-term commitments related to renewable resources include activities related to forestry, water resource development and grazing.

Timber harvesting on a long-term commitment involves Timber Management Agreement Areas. These areas provide exclusive harvesting rights of commercial timber under specific conditions to the agreement holder. These agreements are for a term of 20 years and renewable for a further 20 years. There are three such agreement areas in the foothills, held by North Western Pulp and Power Co. Ltd., Procter and Gamble Cellulose Co. of Canada Ltd. and North Canadian Forest Industries Ltd.

Long-term commitments related to water resources essentially include those related to hydro-electric development. Within the foothills region there are five such developments: the Bighorn dam on the North Saskatchewan River, the Brazeau dam on the Brazeau River, the Ghost Reservoir on the Bow River, the Spray Lakes development in the Spray Valley and the Kananaskis-Barrier Lake development on the Kananaskis River.

The southern foothills have been used for domestic grazing since the turn of the century. In 1948 grazing allotments were established within the forest reserve and grazing allowed on permits renewable on a yearly basis. These permits state the specific amount of grazing that the area is capable of sustaining. Ideally under such a system the grazing resource is used without impairment to the range. Long-term commitments for grazing in the remainder of the province are currently from 5 to 20 years and are renewable.

Short-term Renewable Resource Commitments

Short-term renewable resource commitments are limited in the foothills and involve only small areas. Generally renewable or nonrenewable dispositions of long duration overlap these areas. Included under these commitments are timber permits which permit cutting for Christmas trees, firewood, fence posts, and other forest products. Several agricultural dispositions are also included under this heading such as grazing permits, head tax permits, and wild horse round-up authorizations.

CHAPTER 4

DEMAND FOR RESOURCES IN THE STUDY AREA

The foothills contain many natural resources which can be used for production of goods and services including recreation. Whether these resources are used depends on the demand for these resources and the willingness of firms or individuals to exploit them. The following is an attempt to outline the demand for these resources in the immediate future.

Metallic and Non-Metallic Minerals

There are few large deposits of high-quality mineral resources in the foothills. Of the metallic minerals only copper, lead and zinc exist in any quantity. Some deposits are found in the Castle Drainage District but they appear of too low a quality to be merchantable at the present time.

The surficial deposits (sands and clays) are unlikely to be in great demand. They are bulky, low-value products and the costs of transporting them to populated areas would be too high to make their exploitation profitable.

Of the bedrock deposits in the foothills few are likely to be exploited in the near future. Gypsum, phosphate rock, quartzite and magnetite can be found but not in sufficient quality or quantity to make quarrying economically feasible. Two types of minerals occur with considerable frequency: limestone and dolomite. Dolomite, which can be used as a flux in iron smelting or as a source of agricultural magnesium, is not now being quarried in Alberta and it is unlikely that this situation will change in the near future. Limestone from the Study Area is being quarried at Cadomin, Canmore, Kananaskis, Seebe and Exshaw. Future demand for this resource can be met by continued exploitation of deposits which lie near existing transportation corridors.

Oil and Natural Gas

The foothills are a significant source of oil and natural gas. At the end of 1971 they had accounted for 6.3% of Alberta's cumulative production of crude oil and held 7.7% of her reserves of this resource. Furthermore, the area had provided 23.7% of the province's cumulative production of natural gas and held 32.2% of its reserves. The gas fields are much deeper than fields elsewhere in the province and have a higher sulphur content. The rising demand for energy resources should cause production to increase substantially. The area has not been as extensively explored as other areas of the province and thus an increase in exploration can also be expected.

Grazing

A significant amount of grazing occurs in the southern foothills, where grazing land is leased from the provincial government by individuals or associations. It is expected that beef consumption will increase substantially during the 1970's and 1980's; this will cause demand for grazing land to rise, especially in southwest Alberta where much ranching occurs. Grazing lands in the Bow-Crow Forest, however, are almost fully used at present. Further north there are fewer ranches and the land is less suitable for grazing. Thus the foothills area is unlikely to satisfy the increased demand for grazing land.

Fish and Wildlife

There are three major demands on the fish and wildlife resources of the foothills. These are angling, hunting (primarily of ungulates, big game animals), and recreational observation of the forms of wildlife present there.

Demand for fish and ungulates can be expressed in angler days and hunter days, which are any portion of a day spent by one person in fishing and hunting. There were approximately 400,000 angler days and 300,000 hunter days spent in the foothills in 1972. From these figures it can be seen that there is substantial demand for angling and hunting in the foothills. The use of the foothills for recreational observation is not well documented but is also significant. These figures also show a higher level of use for angling than for hunting in the foothills and this use is expected to increase faster than the use for hunting will increase. The high and increasing demand for angling is partly explained by the fact that this is the only area of Alberta that can provide excellent stream fishing.

Presently the foothills cannot supply the hunting demand for elk, mountain goat, mountain caribou, and bighorn sheep. Only a small supply of elk is available outside the foothills to help accommodate this demand in Alberta and bighorn sheep and mountain goat are not available in the remainder of Alberta. The demand for bighorn sheep and mountain goat is therefore focused on the foothills. Woodland caribou are found in such small numbers elsewhere in the province that the demand cannot be met.

These less abundant wildlife resources will therefore get an increasing percentage of use from the non-consumptive, recreational observation and photography activities in the future, as long as there is no marked increase in populations of these animals.

There is a strong demand for moose and deer hunting in the foothills, but moose and deer hunting can be supplied throughout much of the province and therefore the demand is not as dominant in the foothills for these wildlife resources.

There are also a number of alpine and subalpine wildlife observation conditions that only occur in the mountainous areas. The demand for these experiences can only be supplied in the foothills area of Alberta or in the adjacent national parks.

The wildlife resource of the foothills area has a number of demands placed upon it for hunting, angling, and observation. Many of these demands are heavy because within Alberta they are focused solely on the foothills area, and the wildlife resource available under current management conditions in some instances is inadequate to supply present and future demands.

Forestry

The foothills area supplies timber for a range of forest products from fence posts to sawlogs. Virtually all of the demand in the foothills is for softwood (coniferous) timber; the demand for hardwood (deciduous) timber is not expected to increase until there is a North American shortage of softwood.

Alberta's only two pulp mills are located in the foothills. North Western Pulp and Power Co. Ltd., located at Hinton, commenced operation in 1956 with a 600 ton/day kraft mill. In 1972 they expanded their operation to include a 50 MM f.b.m. sawmill. This has meant a marginal shortage of wood from the present lease area. The second mill, Procter and Gamble Cellulose Co. of Canada Ltd., at Grande Prairie, will begin operation in 1973 with a 750 ton/day bleached kraft mill. They will supplement the roundwood productions from their lease area with sawmill chips. No additional pulp mills are expected in the foothills because of environmental constraints which would make the wood too expensive.

The demand for sawlogs began to exceed the supply in the early 1960's in the foothills. Production was limited to the salvaging of overmature, diseased and decadent timber. As the sawmilling techniques improved, allowing utilization of smaller trees on the cutover land, the total production has increased. However, production of sawn-wood products over the past 10 years has not reflected an expression of wood demand. The supply of saw timber has been limited by the sustained yield forest policy to ensure future timber supply. The bid system of timber dues was replaced by a quota system in 1966, whereby timber dues were pegged to the market price of lumber. This price of logs has been below the price-quantity demand schedule as evidenced by the unfilled requests for timber.

After 1986, the end of the first 20-year quota period, production in the Crowsnest Forest will be decreased considerably. Present production there is high in an effort to salvage bark beetle-infested timber.

Production in Bow Forest is expected to increase significantly as the industry is able to utilize the smaller diameter pine stands. A new plant is being considered for the area, manufacturing lumber and chips which could consume up to 60,000 cords per year.

Coal

The foothills area contains large quantities of low and medium volatile bituminous coal, much of which is ideally suited for carbonizing for use in the metallurgical industry. Although further exploration will likely increase the reserves in the area substantially, present information places the measured, indicated and inferred reserves of this coal at about 28 billion tons of which 982 million tons is in the measured[1] category.

Of low coking quality, but suitable for thermal use, are the high volatile bituminous reserves in the foothills. Although there is presently no demand for this coal, indicated and inferred resources are estimated at 9.3 billion tons.

---

[1] Measured reserves are known to be accurate to within 20% of the actual volume.

Past production from the foothills, with the exception of the thermal coal mines which ceased production in the late 1950's with the advent of the diesel engine locomotive, has been from Coleman in the Crowsnest area, Canmore in the Cascade area, Luscar in the Mountain Park area, and from Grande Cache in the Smoky River area. This low and medium volatile bituminous coal is being used for coking by the Japanese metallurgical industry. Total production from these mines is about 4.5 million tons annually.

There is not expected to be any demand for the high volatile bituminous coal in the foothills to 1985. Mining costs are too high relative to the costs of mining thermal coal on the plains, nor will there be any use for this coal by the metallurgical industry because of the more suitable low and medium volatile bitumous coals in the foothills.

Exploration for low and medium volatile bituminous coals is being carried out in the areas of the Kakwa River, Copton, the Smoky River, the Gregg River, Mountain Park, Sterco Valley, Berland River, Nordegg-Brazeau, the Panther River, Savannah Creek, and Isolation Creek.

Recreation

There are a number of general observations that can be made concerning recreational demand in the foothills but there are few specific data on present and future recreational use of the area.

This area offers a quality recreation environment and in some areas exceptional recreation experiences. Included in this quality recreation is a wide range of possible recreation activities.

There is a high level of recreational use in some areas of the southern foothills at present and moderate to light use in all other areas. Use of the foothills as a recreation environment is increasing and will likely increase at a higher rate than use of many other areas of Alberta because of the attractive nature of the recreational environment found here.

Increase in use is expected to be more than proportionate to increase in population, because of the increasing amounts of leisure time available, higher incomes, increased mobility, and easier access to some parts of the foothills. This increasing demand for recreation on the foothills will not be uniform as those areas closer to population clusters and those areas that are more accessible will experience much heavier use pressures.

CHAPTER 5

EXAMPLE OF POSSIBLE STRATEGIES FOR DEVELOPMENT OF THE FOOTHILLS

Illustrative management strategies are here presented to show some basic implications of proceeding towards certain management goals in the foothills. It is hoped that this presentation will encourage the citizens of Alberta to think about the implications of their goals of land use.

A number of consistent actions are necessary in order to implement any management strategy. Some management goals that could be sought in the foothills, together with the types of actions and conditions necessary to reach that goal, are presented below. Combinations of strategies are possible, although it should be pointed out that the seeking of any one of these goals may negate the possibility of attaining the others, for the necessary actions differ and could come into conflict.

Government policy is not necessarily reflected in any one of these illustrative strategies.

Management Strategy A

To provide the greatest protection of the natural landscape and renewable resources of the foothills area.

1. Land Management Strategy
    - a. Protect area by prohibiting use of nonrenewable and renewable resources.
    - b. Develop programs to prevent damage to natural resources of the area (fire fighting, plant and animal diseases, etc.)
2. Ownership

   The land would be entirely owned by the public to allow implementation of this strategy.
3. Resultant Implications and Policies
    - a. Preservation and retention of natural wilderness character of area.
    - b. Facilities or roads would not be provided, as these would interfere with natural landscape and renewable resources.
    - c. Use of the area would be limited to foot travel and observation.
    - d. Little economic return would be derived from the area.
    - e. The people of Alberta would have complete and effective control over the area.
    - f. Current land uses would be curtailed, all disposed lands would be returned to the public by expropriation if necessary.
    - g. Maintain or improve quality of the water resource generated in the foothills area.

Management Strategy B

To use the renewable resources of the foothills consistent with the protection of the natural landscape and renewable resources of the foothills area.

1. Land Management Strategy
    - a. Protect area by prohibiting commercial use of nonrenewable and renewable resources.
    - b. Conduct ecological research to determine the effects of any use or development within area compatible with protection.
    - c. Develop appropriate land use plans.
    - d. Monitor the effects of land use, with a view to preventing deterioration of natural qualities.
2. Ownership

   The land would be entirely owned by the public to allow implementation of this strategy.
3. Resultant Implications and Policies
    - a. Preservation and retention of natural wilderness character of area.
    - b. Few facilities or roads could be provided, as these would interfere with natural landscape and renewable resources.
    - c. Use of the area would be limited to extensive recreation (activities which do not concentrate people) and scientific observation.
    - d. Little economic return would be derived from the area.
    - e. The people of Alberta would have complete and effective control over the area.

f. Current land uses incompatible with protection would be curtailed.

g. Qualities of the water resource generated in the foothills area would be maintained.

Management Strategy C

To use the foothills for renewable and nonrenewable resources in an integrated manner to lessen conflicts among resource uses and minimize environmental deterioration.

1. Land Management Stategy
   - a. Make all resources available for use in an integrated manner.
   - b. Use and manage renewable and nonrenewable resources in an integrated manner through integrated use management plans which identify and zone lands with different capacities for resource use and which provide for the protection of ecological systems within the foothills.
   - c. Allow exploitation of resources under guidelines that restrict the effect on adjacent land features.
   - d. Review use of the foothills from time to time to determine the effectiveness of the plan and to apply the changing wants and aspirations of Albertans.
2. Ownership

Again, the land would be entirely owned by the public to allow implementation of this strategy. Where private interests in public lands were allowed, restrictions would be applied to ensure that private use of these lands did not conflict with the over-all plan.

3. Resultant Implications and Policies
   - a. The use of resources would be restricted only by supply, demand, the possibility of conflicts of land use, and minimizing environmental degradation.
   - b. A detailed set of information and planning guidelines would be needed.
   - c. With firm and explicit planning, conflicts of land use can be minimized and the quality of the environment can be maintained.
   - d. The greatest number of options would be available for use and development of the foothills.
   - e. The people of Alberta would have effective control over the foothills.

Management Strategy D

To provide some people with private land for their own use and development, while using the remaining areas for integrated use of resources.

1. Land Management Strategy
   - a. Make those resources held in public ownership available for use in an integrated way.
   - b. Develop a comprehensive plan for use of the public lands, taking into account scarcity and quality of resources, demands on various resources, the wants of the people of Alberta, and the returns to Albertans.
   - c. Use the resources on public land according to this plan.
   - d. Review use of the public lands from time to time, to determine the effectiveness of the plan and to apply the changing wants and aspirations of Albertans.
2. Ownership

Areas now privately owned and controlled would remain so; other areas would continue to be owned by the public.

3. Resultant Implications and Policies
   - a. Options for use of resources by the public would be restricted to public lands.
   - b. Use of private land would be for the benefit of the owner, which might not be the same as for the benefit of the public.
   - c. Benefits to the people of Alberta as a whole would not be as great as they might have been.
   - d. Integrated plans could not be implemented for the whole area as there could be no assurance that resources on private lands could be brought into use in an integrated and efficient way.
   - e. Individuals owning land in the area can gain the maximum personal benefit from exercising their own entrepreneurial skills.

Management Strategy E

To allow the foothills to be used by whoever is interested in acquiring ownership of land in the area.

1. Land Management Strategy
   - a. Collect fees for disposition of land to private use.

   b. Individuals will use land under their control as they see fit.

2. Ownership
   Land would be privately owned.
3. Resultant Implications and Policies
   a. Resources would be used with little direct return to the public.
   b. Resource use would rest on supply and demand pressures and economics would be the sole criterion for foothills development.
   c. There would be little means of preventing deterioration of the landscape and of resources.
   d. Only a few people would directly benefit from ownership.
   e. Private enterprise would be most possible under this plan.
   f. The public would have little control over use of land and its resources in the foothills.

Points of Concern in Developing Goals for the Foothills

The various alternative development strategies which have been outlined above vary significantly in their implications for Albertans. The following are suggested as points to consider in assessing their implications for the individual.

1. To what extent will the alternative development strategies clarify goals of land use and resource development as compared with the other goals of Albertans?
2. How well suited are the various strategies to provide Albertans with the opportunity to experiment with a variety of ways to meet their needs and preferences regarding land use and resource development in the foothills?
3. How significant are the differences in the capacity of the various strategies to provide opportunities for citizen participation in the planning, programming, and evaluation of land use policies?
4. To what extent do the various strategies guard against fragmentation, duplication and conflicts in the design and implementation of land use policies?
5. To what extent do the various strategies guard against incompatible resource uses and conflicts?
6. To what extent is adequate consideration given to all land and resource uses?
7. What are the opportunities to selectively develop technologies with a view to efficient resource use with minimal environmental degradation?
8. How much opportunity is available in each strategy for the selection of private vs. public development of renewable and non-renewable resources?

In order to implement land management for the foothills the people of Alberta should give, in addition to a preference for a management strategy, specific direction as to the use priorities they would like in the foothills. Within the management strategy chosen specific interests in uses of land in the foothills should be given. The relative importance of water production, recreation, timber harvesting, wilderness, oil and gas production, industrial minerals, coal mining, and wildlife habitat all should be weighed, and recommendations should be outlined for the preference for each resource, or combination of resources. A logical basis for doing this is to analyse the resource supply and resource demand information given in this paper in combination with comparable information from any other available source and to make recommendations on land use for each of the five main river basins. More detailed recommendations could also be made on the basis of smaller drainage areas within these large river basins. A specific indication of the importance desired for maintaining or using each resource should be given for each river basin, and for each drainage area if possible.

An indication of land use priorities given in this way along with recommendation on the type of management strategy that should be followed will provide a basis for government action in the foothills.

Conclusion

The paper presented here gives the citizens of Alberta information that is of relevance to their making decisions about the foothills in Alberta. The main emphasis of both the land capability information given and the possible development strategies given is that of an overview of the foothills as one entity. It is felt that thinking and goal formulation can best work in the context of a total overview and then proceed down to more specific and maybe local problems and concerns. Personal interests and desires should be put in the context of the whole of the foothills and even of Alberta in order that the most compatible and workable goals are arrived at.

It is hoped that this paper will stimulate discussion on the future of the foothills of Alberta and this will lead through the public hearings to clear indications of the directions to be taken in using this area.

APPENDIX A

Resource Supply In Northern and Southern Foothills Region

Tables I to VI present the statistics concerning physical supply of resources for the northern and southern regions. The southern region includes the Oldman, Bow and Saskatchewan River headwaters and the northern region occupies the Smoky River headwaters. Data are available for each quarter-section of land in these areas. These data are ratings of the land in terms of its supply of, or its capability to supply, each of the resources considered. Ratings fit into five categories that describe the ability of the land to supply the resource. The tables are statistical listings of the amount of land in the region having ratings in each of these qualitative categories. From them the amount of prime land for each resource can be read. These statistics are not available for the central region.

The significant difference between the northern and southern regions appears in the watershed ratings: watershed appears to be relatively more significant in the north than it is in the south. The difference is attributed to poorer watershed data in the northern region. Working around this poor data base resulted in excessively generous ratings being assigned.

All of the tables demonstrate the importance of the foothills as habitat for hoofed big game (ungulates). Admittedly the inventory applies to several species and because of this almost all foothills areas have a considerable importance for some hoofed wildlife species. Of the highly rated ungulate range over 50% is considered vital to the survival of existing populations of animals. Even if the low and moderate categories were disregarded the extent of ungulate range would be impressive.

The importance of the recreation resource in the foothills is demonstrated in the tables. Recognizing wildlife as an aspect of recreational appeal would give recreation a dramatically superior overall value on these lands. Sport fish also may be grouped acceptably with recreation. However, a natural arithmetic sum for all three would not be correct since the recreation ratings take into account both wildlife and sport fish. In contrast to ungulates, recreation has a very small number of its ratings in the excellent category (265 quarter-sections).

Low-quality recreation areas are considerably more numerous, as is indicated on Table V. It must be stressed, however, that lower recreation ratings apply to areas which provide opportunities for extensive types of uses such as hiking or scenery appreciation. Since these uses can be extremely enriching the lower ratings do not imply that users will be any the less satisfied. The inclusion of the lower grades is therefore very justifiable in deriving a total weighted capability.

Land considered excellent for timber production is also relatively scarce in the foothills (349 quarter-sections). This scarceness should probably be interpreted quite differently from the low ratings for recreation. The shortage of highly productive forest land should rather be an indication that the supply does not warrant large-scale timber harvesting operations in the foothills. Including the "good" category land enhances the forestry position considerably. This rating includes forest lands which are currently being exploited for most existing timber operations in the province. Eighteen thousand quarter-sections (4,500 square miles) out of a total of 18,300 square miles are considered capable of producing merchantable volumes of timber.

The relative availability of land suited to other forms of exploitation can readily be extracted from these tables in a similar manner.

Weighted Capability Totals

Table VI weights the capability information according to capability categories shown on the previous tables. Adding the weighted values together produces a weighted capability total for each resource. The higher capabilities assume a greater weight per quarter-section than do the lower ratings. For example, low ratings are weighted by a multiple of only 1 while moderates are weighted by approximately 2.5, goods by 4.5 and excellents by approximately 7. (These weighting factors are approximate since actual calculations carried out to produce Table VI involve finer capability categories than are shown here.) The meaning implied by these weighted factors is that excellent sites have a capability approximately seven times higher than sites with low ratings. When the weighted capabilities for all categories are added together, the sum is a weighted capability total. These values can be compared and the amount of each resource can be considered relative to the others.

TABLE I

CAPABILITY TO SUPPLY RESOURCES

SOUTHERN FOOTHILLS REGION*

RESOURCE	NUMBER OF QUARTER-SECTIONS				
	NIL RATING	LOW RATING	MODERATE RATING	GOOD RATING	EXCELLENT RATING
Agriculture Capability	29,194	0	19,379	369	0
Archaeology Priority	48,840	0	46	33	23
Coal Capability	44,939	1,570	1,828	0	605
Forest Capability	16,196	5,074	17,508	9,815	349
Forest Cover	31,570	9,193	7,076	1,103	0
Grazing Capability	25,368	17,150	5,063	0	1,361
Industrial Minerals	35,780	12,790	311	0	61
Key Range	24,682	0	0	0	24,260
Metallic Minerals	48,462	480	24	0	0
Oil and Gas	0	27,105	17,045	0	4,792
Recreation Capability	0	10,001	29,140	9,573	264
Sport Fish Capability	38,699	0	1,244	7,443	1,556
Ungulate Capability	104	2,584	22,574	16,015	7,665
Waterfowl Capability	35,064	13,362	486	30	0
Watershed Condition	0	29,058	17,353	0	2,531

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

TABLE II

CAPABILITY TO SUPPLY RESOURCES

NORTHERN FOOTHILLS REGION*

	NUMBER OF QUARTER-SECTIONS				
RESOURCE	NIL RATING	LOW RATING	MODERATE RATING	GOOD RATING	EXCELLENT RATING
Agriculture Capability	19,973	0	5,410	3,276	0
Archaeology Priority	28,659	0	0	0	0
Coal Capability	26,846	828	942	0	43
Forest Capability	7,154	3,425	10,129	7,951	0
Forest Cover	19,986	4,878	2,495	1,300	0
Grazing Capability	21,712	3,929	2,463	0	555
Industrial Minerals	27,243	1,416	0	0	0
Key Range	26,219	0	0	0	2,440
Metallic Minerals	28,659	0	0	0	0
Oil and Gas	0	20,639	7,467	0	553
Recreation Capability	0	7,992	19,088	1,578	1
Sport Fish Capability	22,043	0	1,274	5,342	0
Ungulate Capability	0	709	13,006	10,402	4,542
Waterfowl Capability	21,086	7,499	74	0	0
Watershed Condition	0	11,063	11,738	0	5,858

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

TABLE III

CAPABILITY TO SUPPLY RESOURCES

NORTHERN AND SOUTHERN FOOTHILLS REGIONS*

	NUMBER OF QUARTER-SECTIONS				
RESOURCE	NIL RATING	LOW RATING	MODERATE RATING	GOOD RATING	EXCELLENT RATING
Agriculture Capability	49,099	0	24,789	3,645	0
Archaeology Priority	77,239	0	92	132	138
Coal Capability	72,024	2,398	2,770	0	409
Forest Capability	23,350	8,499	27,637	17,766	349
Forest Cover	51,556	14,071	9,571	2,403	0
Grazing Capability	47,080	21,079	7,526	0	1,916
Industrial Minerals	63,023	14,206	311	0	61
Key Range	71,897	0	0	0	5,704
Metallic Minerals	77,049	480	72	0	0
Oil and Gas	0	47,744	24,512	0	5,345
Recreation Capability	0	18,073	48,148	11,115	265
Sport Fish Capability	60,742	0	2,518	12,785	1,556
Ungulate Capability	104	3,293	35,580	26,417	12,207
Waterfowl Capability	56,180	20,861	560	0	0
Watershed Condition	0	40,111	29,101	0	8,389

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

TABLE IV

CAPABILITY TO SUPPLY RESOURCES

NORTHERN AND SOUTHERN FOOTHILLS REGIONS*

		PERCENTAGE OF AREA IN EACH CATEGORY			
RESOURCE	**NIL RATING**	**LOW RATING**	**MODERATE RATING**	**GOOD RATING**	**EXCELLENT RATING**
Agriculture Capability	64%	0%	32%	4%	0%
Archaeology Priority	99	0	.2	.4	.4
Coal Capability	93	3	3	0	1
Forest Capability	31	10.5	35	23	.5
Forest Cover	66	19	12	3	0
Grazing Capability	61	28	9	0	2
Industrial Minerals	81	18	.8	0	.2
Key Range	92	0	0	0	8
Metallic Minerals	99	.8	.2	0	0
Oil and Gas	0	61	31	0	8
Recreation Capability	0	23	62	14	1
Sport Fish Capability	78	0	3	16	3
Ungulate Capability	1	4	45	34	16
Waterfowl Capability	72	27	1	0	0
Watershed Condition	0	51	38	0	11

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

TABLE V

CAPABILITY TO SUPPLY RESOURCES

NORTHERN AND SOUTHERN FOOTHILLS REGIONS*

RESOURCE	NUMBER OF QUARTER-SECTIONS		
	EXCELLENT RATINGS ONLY	EXCELLENT AND GOOD RATINGS COMBINED	EXCELLENT, GOOD & MODERATE RATINGS COMBINED
Agriculture Capability	0	3,645	28,434
Archaeology Priority	138	270	362
Coal Capability	409	409	3,179
Forest Capability	349	18,115	45,752
Forest Cover	0	2,403	11,974
Grazing Capability	1,916	1,916	9,442
Industrial Minerals	61	61	372
Key Range	5,704	5,704	5,704
Metallic Minerals	0	0	72
Oil and Gas	5,345	5,345	29,857
Recreation Capability	265	11,380	59,528
Sport Fish Capability	1,556	14,341	16,859
Ungulate Capability	12,207	38,624	74,204
Waterfowl Capability	0	0	560
Watershed Condition	8,389	8,389	37,490

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

TABLE VI

WEIGHTED CAPABILITY TOTALS
FOR RESOURCES
NORTHERN AND SOUTHERN FOOTHILLS REGION*

RESOURCE	WEIGHTED CAPABILITY TOTAL: EXCELLENT RATINGS ONLY	WEIGHTED CAPABILITY TOTAL: EXCELLENT AND GOOD RATINGS	WEIGHTED CAPABILITY TOTAL: EXCELLENT GOOD & MODERATE	WEIGHTED CAPABILITY TOTAL: EXCELLENT GOOD, MODERATE & LOW
Agriculture Capability	0	14,788	80,180	80,180
Archaeology Priority	138	270	362	362
Coal Capability	2,454	2,454	10,764	13,162
Forest Capability	2,094	90,924	173,835	182,334
Forest Cover	0	12,015	42,784	56,855
Grazing Capability	11,496	11,496	34,074	55,153
Industrial Minerals	366	366	1,299	15,505
Key Range	41,982	41,982	41,982	41,982
Metallic Minerals	0	0	72	552
Oil and Gas	32,070	32,070	105,606	153,350
Recreation Capability	1,630	44,490	188,934	207,007
Sport Fish Capability	9,336	60,476	65,512	65,512
Ungulate Capability	72,814	219,824	313,275	316,568
Waterfowl Capability	0	0	1,150	22,011
Watershed Condition	50,334	50,334	137,637	177,748

* **Source:** Foothills Resource Allocation Study
Department of Lands and Forests

APPENDIX B

CENTRAL FOOTHILLS REGION
SUMMARIES OF EXISTING RESOURCE SUPPLY

The Central Foothills Region approximates the
Athabasca River Basin and its tributaries
within the Foothills of Alberta

TABLE I

TOTAL GROSS TIMBER VOLUME

Pulpwood — 4″ to 9″ DBH (Thousands of cords)
Coniferous — 40,891
Deciduous — 12,024

Saw Timber — 10″ + DBH (Millions of board feet)
Coniferous — 11,160
Deciduous — 5,540

Total Equivalent Timber (Millions of cubic feet)
Coniferous — 5,571,690
Deciduous — 2,069,461

Source: Timber Management Branch, Alberta Forest Service, Department of Lands and Forests. The date of inventory varies but the figures are valid in that they provide an indication of the magnitude of the forest potential.

TABLE II

OIL AND NATURAL GAS RESERVES*(DECEMBER, 1971)

OIL	14,737	Millions of barrels
GAS	1,975	Billions of cubic feet
LIQUID PETROLEUM GAS	17,400	Millions of barrels
SULPHUR	4,467	Thousands of long tons

Source: Energy Resources Conservation Board

* These reserves include only those oil and gas fields that are presently in production.

TABLE III

COAL RESERVES

SUBREGION	AREA	RESERVES (MILLIONS OF TONS)
Foothills	Prairie Creek	420
	Coalspur	4,050
Mountain	Smoky River	
	N.W. of Smoky River	1,500
	S.E. of Smoky River	4,000
	Brule	1,450
	Mountain Park	3,400
	TOTAL RESERVES	14,820

Source: These figures have been provided by Mr. N. J. Duncan, Senior Engineer, Coal Division, Energy Resources Conservation Board and are based on B. R. MacKay's "Coal Reserves in Canada" (1946).

APPENDIX C

ESTIMATED DENSITIES OF BIG GAME UNGULATES IN FOOTHILLS AREA

MOOSE	0.1 per sq. mi. in subalpine 1.5 per sq. mi. in foothills
ELK	18,000
MULE DEER	3.0 per sq. mi.
WHITE-TAILED DEER	trace
CARIBOU	650
ROCKY MTN. BIGHORN SHEEP	4,500
ROCKY MTN. GOATS	1,000

Source: Fish and Wildlife Division, Edmonton.

DATE DUE
DATE DE RETOUR

LOWE-MARTIN No. 1137

CA2ALEV19
73 B10
c.1

The Resources of the
Foothills Info. Bulletin #11

ISSUED TO

LEGISLATURE LIBRARY
216 LEGISLATURE BUILDING
EDMONTON, ALBERTA

JUN 2 19

Printed by the QUEEN'S PRINTER for the Province of Alberta.